

Remarks

Claims 1-20 stand finally rejected under 35 U.S.C. 102(e) as allegedly anticipated by U.S. Patent Application Publication 2002/0191349 to Hsu et al. (Hsu).

Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 221 USPQ 481, 485 (Fed. Cir. 1984).

Applicants have carefully reviewed Hsu, the Office Action and the claims at issue, and respectfully assert that none of the claims are anticipated by Hsu.

A. Claims 1-7

Claim 1 has been amended to recite, in part:

“wherein forming said inorganic nonferromagnetic apex includes forming a photoresist mask over said first pole layer, said mask terminating adjacent to a desired location of said second side, and removing said mask to define said inorganic nonferromagnetic apex.”

Hsu does not teach or suggest “forming a photoresist mask over said first pole layer, said mask terminating adjacent to a desired location of said second side, and removing said mask to define said inorganic nonferromagnetic apex.”

Claim 1 also includes the limitations of:

“forming an inorganic nonferromagnetic apex region having a first side that is substantially parallel to said surface and a second side that is not parallel to said surface and not perpendicular to said surface;” and

“forming a second soft magnetic pole layer over said inorganic nonferromagnetic apex region, such that said second pole layer has an interface that is substantially equidistant from said second side.”

Hsu does not teach or suggest “forming a second soft magnetic pole layer over said inorganic nonferromagnetic apex region, such said second pole layer has an interface that is substantially equidistant from said second side.” Instead, Hsu states in paragraph [0068]: “An important aspect of the invention, however, is that the profile of the first write coil layer 206 is not replicated into the second write coil layer 230 because of the thick alumina layer 226 therebetween.” See also the “SUMMARY OF THE

INVENTION,” paragraph [0013], which teaches: “A thick insulation layer, which is preferably alumina, is provided between the bottom and top write coils so as to provide an effective heat sink for the top coil. The thick insulation layer is planarized so as to eliminate any profile of the bottom coil being replicated into the top coil.”

For at least these reasons, claim 1 and all of the claims that depend from claim 1 are not anticipated by Hsu.

Claim 2 has been amended to recite, in part:

“baking said photoresist mask and thereby forming a hardbaked photoresist mask over said inorganic nonferromagnetic layer.”

Hsu does not teach or suggest “baking said photoresist mask and thereby forming a hardbaked photoresist mask over said inorganic nonferromagnetic layer.”

Claim 2 also includes the limitation of:

“etching said hardbaked photoresist mask and said inorganic nonferromagnetic layer to create said inorganic nonferromagnetic apex region.”

Hsu, in contrast, states in paragraphs 58 and 65 that “alumina layer 210” is “planarized,” and does not teach etching the “alumina layer 210.”

Claim 3 includes the limitation of “depositing said inorganic nonferromagnetic layer on said first soft magnetic pole layer and said photoresist mask; and chemically removing said photoresist mask.”

Hsu, in contrast, shows in FIG. 10A that “alumina layer 210” is formed on “hardbaked photoresist 208.”

Claim 4 includes the limitation of “chemically etching said inorganic nonferromagnetic layer.”

Hsu, in contrast, states in paragraphs 58 and 65 that “alumina layer 210” is “planarized,” and does not teach etching the “alumina layer 210.”

B. Claims 8-14

Claim 8 includes the limitation of “etching said hardbaked photoresist mask and said inorganic nonferromagnetic layer.” Applicants respectfully disagree with the Office Action assertion that Hsu teaches this limitation. Paragraph [0071] and FIG. 10A of Hsu

do not teach this limitation. Instead, Hsu states in paragraphs 58 and 65 that “alumina layer 210” is “planarized,” and does not teach etching the “alumina layer 210.”

Claim 8 also includes the limitation of “including removing said hardbaked photoresist mask.” Applicants respectfully disagree with the Office Action assertion that Hsu teaches this limitation.

Claims 9-14 are not anticipated by Hsu for at least the reasons mentioned above regarding claim 8.

In addition, claim 10 includes the limitation of “wherein forming said region of inorganic nonferromagnetic material includes etching said inorganic nonferromagnetic layer into a shape that substantially duplicates a shape of said mask.” An example of such a method is shown in FIG. 5 and FIG. 6 of the present application. This limitation is not taught or suggested in Hsu.

Further, claim 14 includes the limitations of “forming an inorganic dielectric layer that partly covers said first soft magnetic layer, prior to forming said inorganic nonferromagnetic layer;” and “positioning said mask such that said region of inorganic nonferromagnetic material is disposed partly on said first soft magnetic layer and partly on said inorganic dielectric layer.” Neither of these limitations are taught or suggested in Hsu.

C. Claims 15-20

Claim 15 has been amended to recite, in part:

“wherein forming said inorganic nonferromagnetic apex includes forming a photoresist mask over said first pole layer, said mask terminating adjacent to a desired location of said sloping surface, and removing said mask to define said inorganic nonferromagnetic apex.”

Hsu does not teach or suggest “wherein forming said inorganic nonferromagnetic apex includes forming a photoresist mask over said first pole layer, said mask terminating adjacent to a desired location of said sloping surface, and removing said mask to define said inorganic nonferromagnetic apex.”

Claim 15 also includes the limitation of “a step for forming a second soft magnetic pole layer over said inorganic nonferromagnetic apex region, such that said

second pole layer has a region that is substantially parallel to said sloping surface and disposed within one micron of said sloping surface.”

Applicants respectfully assert that Hsu does not teach this limitation. Instead, Hsu states in paragraph [0068]: “An important aspect of the invention, however, is that the profile of the first write coil layer 206 is not replicated into the second write coil layer 230 because of the thick alumina layer 226 therebetween.” See also the “SUMMARY OF THE INVENTION,” paragraph [0013], which teaches: “A thick insulation layer, which is preferably alumina, is provided between the bottom and top write coils so as to provide an effective heat sink for the top coil. The thick insulation layer is planarized so as to eliminate any profile of the bottom coil being replicated into the top coil.”

Claim 16 has been amended to recite, in part: “baking said photoresist mask and thereby forming a hardbaked photoresist mask over said inorganic nonferromagnetic layer.”

Claim 16 also includes the limitation of “etching said hardbaked photoresist mask and said inorganic nonferromagnetic layer to create said inorganic nonferromagnetic apex region.” Applicants respectfully disagree with the Office Action assertion that Hsu teaches “chemically etching the hardbaked photoresist mask and the inorganic nonferromagnetic apex region.”

Claim 17 has been amended to recite, in part: “depositing an inorganic nonferromagnetic layer including said inorganic nonferromagnetic layer apex region on said first soft magnetic pole layer and said photoresist mask; and chemically removing said photoresist mask.”

Applicants respectfully assert that Hsu does not teach or suggest “depositing an inorganic nonferromagnetic layer including said inorganic nonferromagnetic layer apex region on said first soft magnetic pole layer and said photoresist mask; and chemically removing said photoresist mask.”

Claim 18 includes the limitation of “chemically etching said inorganic nonferromagnetic layer.” Applicants respectfully disagree with the Office Action assertion that paragraph [0071] and FIG. 10A of Hsu teaches “chemically etching the hardbaked photoresist mask and the inorganic nonferromagnetic apex region.”

Conclusion:

Applicants respectfully request reconsideration of the claims in light of this Amendment. Applicants respectfully assert that the claims are in condition for allowance, and a Notice of Allowance is solicited.

The Examiner is respectfully requested to telephone applicants' attorney at the number listed below should he have any question involving this Amendment.

Respectfully submitted,

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on October 28, 2003.

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